

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Cancelled)
2. (Presently amended) A paint delivery and application system, comprising:
a paint supply switching device including at least two sources of paint;
at least two paint canisters;
a paint applicator;
a first pair of separate supply lines connecting said paint supply switching device and said paint canisters;
a pigging element movable in each of said first pair of supply lines between a first station adjacent said paint supply switching device and a second station adjacent one of said paint canisters;
a second pair of separate supply lines connecting said canisters to said paint applicator; and
a pigging element in each of said second pair of separate supply lines movable between a first station adjacent one of said paint canisters and a second station adjacent or within said paint applicator;
whereby a first paint may be delivered from a first of said paint canisters to said paint applicator while a second paint is delivered from said paint supply switching device to a second of said paint canisters; and
The system as defined in Claim 1, wherein said second of said paint canisters (34, 36) is electrically isolated from said paint applicator [(30)] when said second paint is delivered from said paint supply switching device [(20)] to said second of said paint canisters and/or said paint supply switching device [(20)] is electrically isolated from said first of said paint canisters [(34)] when said

first paint is delivered from said first paint ~~eannister~~ canister to said paint applicator [[(30)]].

3. (Presently amended) The system as defined in Claim 2, wherein movement of said pigging element between said second station [[(54)]] adjacent or within said paint applicator [[(30)]] and said first station [[(46)]] adjacent one of said paint ~~eannisters~~ canisters (34, 36) electrically isolates said paint ~~eannister~~ canister from said paint applicator.

4. (Presently amended) A paint delivery and application system, comprising:

a paint supply switching device including at least two sources of paint;

at least two paint canisters;

a paint applicator;

a first pair of separate supply lines connecting said paint supply switching device and said paint canisters;

a pigging element movable in each of said first pair of supply lines between a first station adjacent said paint supply switching device and a second station adjacent one of said paint canisters;

a second pair of separate supply lines connecting said canisters to said paint applicator; and

a pigging element in each of said second pair of separate supply lines movable between a first station adjacent one of said paint canisters and a second station adjacent or within said paint applicator;

whereby a first paint may be delivered from a first of said paint canisters to said paint applicator while a second paint is delivered from said paint supply switching device to a second of said paint canisters; and

~~The system as defined in any preceding claim,~~ wherein said first stations [(46)] are a trunk line communicating with one of said supply lines (38-44) receiving said pigging element and permitting paint to flow past said pigging element until released in said supply line.

5. (Presently amended) A paint delivery and application system, comprising:

a paint supply switching device including at least two sources of paint;
at least two paint canisters;

a paint applicator;

a first pair of separate supply lines connecting said paint supply switching device and said paint canisters;

a pigging element movable in each of said first pair of supply lines between a first station adjacent said paint supply switching device and a second station adjacent one of said paint canisters;

a second pair of separate supply lines connecting said canisters to said paint applicator; and

a pigging element in each of said second pair of separate supply lines movable between a first station adjacent one of said paint canisters and a second station adjacent or within said paint applicator;

whereby a first paint may be delivered from a first of said paint canisters to said paint applicator while a second paint is delivered from said paint supply switching device to a second of said paint canisters; and

~~The system as defined in any preceding claim,~~ wherein said system includes a source [(60)] of solvent under pressure and a solvent supply line [(61)] connected directly from said source of solvent to said applicator [(30)] for flushing said applicator.

6. (Presently amended) A paint delivery and application system, comprising:

a paint supply switching device including at least two sources of paint;

at least two paint canisters;

a paint applicator;

a first pair of separate supply lines connecting said paint supply switching device and said paint canisters;

a pigging element movable in each of said first pair of supply lines between a first station adjacent said paint supply switching device and a second station adjacent one of said paint canisters;

a second pair of separate supply lines connecting said canisters to said paint applicator; and

a pigging element in each of said second pair of separate supply lines movable between a first station adjacent one of said paint canisters and a second station adjacent or within said paint applicator;

whereby a first paint may be delivered from a first of said paint canisters to said paint applicator while a second paint is delivered from said paint supply switching device to a second of said paint canisters; and

~~The system as defined in any preceding claim,~~ wherein said second pair of separate supply lines (40, 44) each include at least two pigging elements having solvent therebetween, thereby flushing said second pair of separate supply lines and said applicator [(30)] with solvent.

7. (Presently amended) A paint delivery and application system, comprising:

a paint supply switching device including at least two sources of paint;

at least two paint canisters;

a paint applicator;

a first pair of separate supply lines connecting said paint supply switching device and said paint canisters;

a pigging element movable in each of said first pair of supply lines between a first station adjacent said paint supply switching device and a second station adjacent one of said paint canisters;

a second pair of separate supply lines connecting said canisters to said paint applicator; and

a pigging element in each of said second pair of separate supply lines movable between a first station adjacent one of said paint canisters and a second station adjacent or within said paint applicator;

whereby a first paint may be delivered from a first of said paint canisters to said paint applicator while a second paint is delivered from said paint supply switching device to a second of said paint canisters; and

~~The system as defined in any preceding claim, wherein said paint applicator [[(30)]] is located in a paint spray booth and said paint canisters [[(34, 36)]] and said paint supply switching device [[(20)]] are located outside said paint spray booth.~~

8. (Presently amended) A paint delivery and application system, comprising:

a paint supply switching device including at least two sources of paint;

at least two paint canisters;

a paint applicator;

a first pair of separate supply lines connecting said paint supply switching device and said paint canisters;

a pigging element movable in each of said first pair of supply lines between a first station adjacent said paint supply switching device and a second station adjacent one of said paint canisters;

a second pair of separate supply lines connecting said canisters to said paint applicator; and

a pigging element in each of said second pair of separate supply lines movable between a first station adjacent one of said paint canisters and a second station adjacent or within said paint applicator;

whereby a first paint may be delivered from a first of said paint canisters to said paint applicator while a second paint is delivered from said paint supply switching device to a second of said paint canisters; and

~~The system as defined in any of Claims 1 to 6, wherein said paint applicator [[(30)]] is located in a paint spray booth, said paint applicator is a robotic paint applicator and said paint eannisters canisters (34, 36) are located on said robotic paint applicator.~~

9. (Presently amended) A paint delivery and application system, comprising:

a paint supply switching device including at least two sources of paint;

at least two paint canisters;

a paint applicator;

a first pair of separate supply lines connecting said paint supply switching device and said paint canisters;

a pigging element movable in each of said first pair of supply lines between a first station adjacent said paint supply switching device and a second station adjacent one of said paint canisters;

a second pair of separate supply lines connecting said canisters to said paint applicator; and

a pigging element in each of said second pair of separate supply lines movable between a first station adjacent one of said paint canisters and a second station adjacent or within said paint applicator;

whereby a first paint may be delivered from a first of said paint canisters to said paint applicator while a second paint is delivered from said paint supply switching device to a second of said paint canisters; and

~~The system as defined in any preceding claim,~~ wherein said system includes a control module [[(110)]] delivering said first paint from said paint supply switching device [[(120)]] to said first of said paint ~~cannisters~~ canisters [[(134)]] through a first supply line [[(138)]] of said first pair of supply lines, then upon delivery of substantially all of a predetermined quantity of said first paint to said first of said paint ~~cannisters~~ canisters [[(134)]], said control module [[(110)]] releasing one of said pigging elements into said first supply line under pneumatic pressure, thereby delivering a remainder of said first paint to said first of said paint ~~cannisters~~ canisters and electrically isolating said first of said paint ~~cannisters~~ canisters from said paint supply switching device.

10. (Presently amended) A paint delivery and application system, comprising:

a paint supply switching device including at least two sources of paint;

at least two paint canisters;

a paint applicator;

a first pair of separate supply lines connecting said paint supply switching device and said paint canisters;

a pigging element movable in each of said first pair of supply lines between a first station adjacent said paint supply switching device and a second station adjacent one of said paint canisters;

a second pair of separate supply lines connecting said canisters to said paint applicator; and

a pigging element in each of said second pair of separate supply lines movable between a first station adjacent one of said paint canisters and a second station adjacent or within said paint applicator;

whereby a first paint may be delivered from a first of said paint canisters to said paint applicator while a second paint is delivered from said paint supply switching device to a second of said paint canisters; and

~~The system as defined in any preceding claim, wherein said paint cannisters canisters (34, 36; 134, 136) each include a reciprocal piston (37, 137) which retracts upon filling said paint cannisters canister and paint in said paint cannisters canister is then driven to said paint applicator (30, 130) by extending said piston.~~

11. (Presently amended) The system as defined in claim 10, wherein said piston (37, 137) is driven by dosing means comprising an electric motor and/or a servo drive.

12. (Presently amended) The system as defined in Claim 9, wherein said control module [(110)] then delivers said first paint under pressure from said first of said paint cannisters canisters [(134)] to said paint applicator [(130)] and #441250

simultaneously delivers said second paint from said paint supply switching device [[(120)]] to said second of said paint ~~cannisters~~ canisters [[(136)]] while said second of said paint ~~cannisters~~ canisters is electrically isolated from said paint applicator.

13. (Presently amended) A paint delivery and application system, The system particularly as defined in Claim 1, comprising:

a paint supply switching device including at least two sources of paint and a source [[(120)]] of paint under pressure;

at least two paint canisters, including a first paint eannister canister [[(134)]] having a piston [[(137)]] reciprocable therein;

a paint applicator [[(130)]];

a first pair of separate supply lines connecting said paint supply switching device and said paint canisters, including a first delivery line [[(138)]] between said source [[(120)]] of paint under pressure and said first paint eannister canister [[(134)]] adapted to deliver paint from said source of paint under pressure to said first paint eannister canister;

a second pair of separate supply lines connecting said canisters to said paint applicator, including a second delivery line [[(140)]] between said first paint eannister canister [[(134)]] and said paint applicator [[(130)]] adapted to deliver paint from said first paint eannister canister to said paint applicator;

a first pig station [[(162)]] communicating with said second delivery line [[(140)]] adjacent said first paint eannister canister [[(134)]];

a second pig station [[(164)]] communicating with said second delivery line [[(140)]] adjacent or within said paint applicator [[(130)]];

a pigging element movable in each of said first pair of supply lines between a first station adjacent said paint supply switching device and a second station adjacent one of said paint canisters;

a pigging element in each of said second pair of separate supply lines movable between a first station adjacent one of said paint canisters and a second station adjacent or within said paint applicator, including at least one pigging element movable in said second delivery line [[(40)]] between said first pig station [[(162)]] adjacent said

first paint canister and said second pig station [[(164)]] adjacent or within said paint applicator; and

a source [[(172)]] of solvent under pressure communicating with said second delivery line [[(140)]] adjacent or within said paint applicator [[(130)]];

whereby, a first paint may be delivered from said first paint canister to said paint applicator while a second paint is delivered from said paint supply switching device to a second of said paint canisters; and whereby, paint is delivered from said source [[(120)]] of paint under pressure to said first paint cannister canister [[(134)]] upon retraction of said piston [[(137)]] in said first paint cannister canister, paint is delivered to said paint applicator [[(130)]] upon extension of said piston in said first paint applicator canister and a predetermined volume of solvent is delivered to said second supply line [[(140)]] from said source [[(172)]] of solvent under pressure upon retraction of said piston in said paint cannister canister following delivery of paint to said paint applicator.

14. (Presently amended) The system as defined in Claim 13, wherein said second delivery line [[(140)]] includes two pigging elements (166, 168) and said source [[(172)]] of solvent under pressure is connected to said second pig station [[(164)]] to deliver solvent between said pigging elements.

15. (Canceled)

16. (Presently amended) A method of delivering and applying paint to a substrate using a paint delivery and application system including a paint supply switching device having at least two sources of paint under pressure, at least two paint canisters, a paint applicator, a first pair of separate supply lines connecting said paint delivery and switching device and said paint canisters, and a second pair of separate supply lines connecting said paint canisters to said paint applicator, said method comprising the following steps:

directing a first paint under pressure from said paint supply switching device to a first of said paint canisters;

directing said first paint from said first of said canisters to said paint applicator, thereby delivering said first paint to said substrate;

delivering a second paint under pressure from said paint supply switching device to a second of said paint canisters;

moving at least one pigging element through each of said supply lines respectively between a first station adjacent said switching device and a second station adjacent one of said canisters and between a first station adjacent one of said canisters and a second station adjacent or within said paint applicator; and

~~The method as defined in Claim 15, wherein said method includes electrically isolating said second of said paint canisters [[(36)]] from said paint applicator [[(30)]] when said second paint is delivered from said paint supply switching device [[(20)]] to said second of said paint canisters.~~

17. (Presently amended) A method of delivering and applying paint to a substrate using a paint delivery and application system including a paint supply switching device having at least two sources of paint under pressure, at least two paint canisters, a paint applicator, a first pair of separate supply lines connecting said paint delivery and switching device and said paint canisters, and a second pair of separate supply lines connecting said paint canisters to said paint applicator, said method comprising the following steps:

directing a first paint under pressure from said paint supply switching device to a first of said paint canisters;

directing said first paint from said first of said canisters to said paint applicator, thereby delivering said first paint to said substrate;

delivering a second paint under pressure from said paint supply switching device to a second of said paint canisters;

moving at least one pigging element through each of said supply lines respectively between a first station adjacent said switching device and a second station adjacent one of said canisters and between a first station adjacent one of said canisters and a second station adjacent or within said paint applicator; and

~~The method as defined in Claim 15 or 16, wherein said method includes electrically isolating said first of said paint canisters [((34))] from said paint supply switching device [((20))] as said first paint is directed from said first of said paint canisters to said paint applicator [((30))].~~

18. (Presently amended) A method of delivering and applying paint to a substrate using a paint delivery and application system including a paint supply switching device having at least two sources of paint under pressure, at least two paint canisters, a paint applicator, a first pair of separate supply lines connecting said paint delivery and switching device and said paint canisters, and a second pair of separate supply lines connecting said paint canisters to said paint applicator, said method comprising the following steps:

directing a first paint under pressure from said paint supply switching device to a first of said paint canisters;

directing said first paint from said first of said canisters to said paint applicator, thereby delivering said first paint to said substrate;

delivering a second paint under pressure from said paint supply switching device to a second of said paint canisters;

moving at least one pigging element through each of said supply lines respectively between a first station adjacent said switching device and a second station adjacent one of said canisters and between a first station adjacent one of said canisters and a second station adjacent or within said paint applicator; and

~~The method as defined in any of claims 15 to 17, wherein said method includes~~ delivering solvent under pressure directly to said paint applicator [[(30)]] from a source [[(60)]] of solvent under pressure following delivery of said first paint to said paint applicator.

19. (Presently amended) A method of delivering and applying paint to a substrate using a paint delivery and application system including a paint supply switching device having at least two sources of paint under pressure, at least two paint canisters each containing a reciprocable piston, a paint applicator, a first pair of separate supply lines connecting said paint delivery and switching device and said paint canisters, and a second pair of separate supply lines connecting said paint canisters to said paint applicator, said method comprising the following steps:

directing a first paint under pressure from said paint supply switching device to a first of said paint canisters;

directing said first paint from said first of said canisters to said paint applicator, thereby delivering said first paint to said substrate;

delivering a second paint under pressure from said paint supply switching device to a second of said paint canisters;

moving at least one pigging element through each of said supply lines respectively between a first station adjacent said switching device and a second station adjacent one of said canisters and between a first station adjacent one of said canisters and a second station adjacent or within said paint applicator; and

The method as defined in any of claims 15 to 18, wherein said paint cannisters each include a reciprocable piston (37), said method including directing said first paint under pressure to said first of said paint cannisters canisters [[(34)]], and retracting its said piston [[(37)]], thereby at least partially filling said first of said paint canisters, then extending its said piston to drive said first paint to said paint applicator [[(30)]], and

delivering said second paint to said second of said paint cannisters canisters [[(36)]], thereby at least partially filling said second of said paint cannisters canisters and retracting its said piston [[(37)]], then extending its said piston to drive said second paint to said paint applicator [[(30)]].

20. (Presently amended) A method of delivering and applying paint to a substrate using a paint delivery and application system including a paint supply switching device having at least two sources of paint under pressure, at least two paint canisters, a paint applicator, a first pair of separate supply lines connecting said paint delivery and switching device and said paint canisters, and a second pair of separate supply lines connecting said paint canisters to said paint applicator, said method comprising the following steps:

directing a first paint under pressure from said paint supply switching device to a first of said paint canisters;

directing said first paint from said first of said canisters to said paint applicator, thereby delivering said first paint to said substrate;

delivering a second paint under pressure from said paint supply switching device to a second of said paint canisters; and

moving at least one pigging element through each of said supply lines respectively between a first station adjacent said switching device and a second station adjacent one of said canisters and between a first station adjacent one of said canisters and a second station adjacent or within said paint applicator;

The method as defined in any of claims 15 to 19, wherein said second pair of separate paint supply lines (140, 144) each include at least two pigging elements, said method including delivering solvent between said pigging elements and driving said paint and said pigging elements to said paint applicator [(130)], thereby flushing said second pair of separate supply lines and said applicator with solvent.

21. (Presently amended) The method as defined in Claim 19 [or 20], wherein said second pair of separate supply lines (40, 44) each include a pigging element, a first pigging station [(46)] adjacent said paint canister (34, 36) and a second pigging station [(54)] adjacent or within said paint applicator [(30)], said method including driving said pigging element from said second pigging station

[(54)] to said first pigging station [(46)], thereby driving remaining paint in said second pair of supply lines to one of said paint ~~cannisters~~ canisters (34, 36) and retracting said piston [(37)], then extending said piston to drive said remaining paint to said paint supply switching device [(20)].

22. (Presently amended) A method of delivering and applying paint to a substrate using a paint delivery and application system including a paint supply switching device having at least two sources of paint under pressure, at least two paint canisters, a paint applicator, a first pair of separate supply lines connecting said paint delivery and switching device and said paint canisters, and a second pair of separate supply lines connecting said paint canisters to said paint applicator, said method comprising the following steps:

directing a first paint under pressure from said paint supply switching device to a first of said paint canisters;

directing said first paint from said first of said canisters to said paint applicator, thereby delivering said first paint to said substrate;

delivering a second paint under pressure from said paint supply switching device to a second of said paint canisters;

moving at least one pigging element through each of said supply lines respectively between a first station adjacent said switching device and a second station adjacent one of said canisters and between a first station adjacent one of said canisters and a second station adjacent or within said paint applicator;

The method as defined in claim 15, comprising:

delivering a predetermined quantity of a first paint from said paint supply switching device [(20)] to said first of said paint ~~cannisters~~ canisters [(34)] through a first supply line [(38)];

releasing a first pigging element under pneumatic pressure into said first supply line, thereby delivering a remaining predetermined quantity of said first paint to said first of said paint ~~cannisters~~ canisters [(34)] and electrically isolating said first of said paint ~~cannisters~~ canisters from said paint supply switching device [(20)];

delivering a predetermined quantity of said first paint under pressure from said first of said paint ~~cannisters~~ canisters [(34)] to said paint applicator [(30)];

releasing a second pigging element into a second supply line [[(40)]] under pressure, thereby delivering a remaining predetermined quantity of said first paint in said first of said paint ~~cannisters~~ canisters [[(34)]] to said paint applicator [[(30)]] and applying said first paint to a substrate; and

delivering a second paint from said paint supply switching device [[(20)]] to said second of said paint ~~cannisters~~ canisters [[(36)]] through a third supply line [[(42)]] while said second of said paint ~~cannisters~~ canisters [[(36)]] is electrically isolated from said paint applicator.

23. (Presently amended) The method as defined in Claim 22, wherein said method further includes releasing a third pigging element into said third supply line [[(42)]] under pneumatic pressure, thereby delivering a predetermined quantity of said second paint to said second of said paint ~~cannisters~~ canisters [[(36)]] and electrically isolating said second of said paint ~~cannisters~~ canisters from said paint supply switching device [[(20)]].

24. (Presently amended) The method as defined in Claim 22 [[or 23]], wherein said method further includes in sequence driving said second paint from said second of said paint ~~cannisters~~ canisters [[(36)]] to said paint applicator [[(30)]] through a fourth supply line [[(44)]] while said second of said paint ~~cannisters~~ canisters [[(36)]] is electrically isolated from said paint supply and switching device [[(20)]] and releasing a fourth pigging element into said fourth supply line [[(44)]] thereby delivering a remaining quantity of said second paint from said second of said paint ~~cannisters~~ canisters to said paint applicator [[(30)]] and applying said second paint to a substrate.

25. (Presently amended) A method of delivering and applying paint to a substrate using a paint delivery and application system including a paint supply switching device having at least two sources of paint under pressure, at least two paint canisters, a paint applicator, a first pair of separate supply lines connecting said paint delivery and switching device and said paint canisters, and a second pair of separate supply lines connecting said paint canisters to said paint applicator, said method comprising the following steps:

directing a first paint under pressure from said paint supply switching device to a first of said paint canisters;

directing said first paint from said first of said canisters to said paint applicator, thereby delivering said first paint to said substrate;

delivering a second paint under pressure from said paint supply switching device to a second of said paint canisters; and

moving at least one pigging element through each of said supply lines respectively between a first station adjacent said switching device and a second station adjacent one of said canisters and between a first station adjacent one of said canisters and a second station adjacent or within said paint applicator;

~~The method of as defined in any of claims 15 to 24, wherein said paint supply and switching device [[(20)]] includes a source of solvent under pressure and said method further includes delivering solvent under pressure to said paint applicator [[(30)]] through said first and second supply lines (38, 40) following delivery of said first paint through said paint applicator to a substrate.~~

26. (Presently amended) A method of delivering a predetermined volume of solvent to a paint delivery and application system having at least one paint ~~cannister canister~~ [[(134)]] receiving paint from a source [[(120)]] of paint under pressure including a piston [[(137)]] reciprocating therein, a paint applicator [[(130)]] a delivery line [[(140)]] between said paint ~~cannister canister~~ [[(134)]] and said paint applicator and a source [[(172)]] of solvent under pressure connected to said delivery line [[(140)]] adjacent or within said paint applicator [[(130)]]~~, particularly as defined in any of claims 15 to 25~~, said method comprising the following steps:

delivering a predetermined volume of paint from said source [[(120)]] of paint under pressure to said paint ~~cannister canister~~ [[(134)]] while withdrawing said piston [[(137)]];

extending said piston [[(137)]] and driving paint from said paint ~~cannister canister~~ [[(134)]] to said paint applicator [[(130)]] through said delivery line [[(140)]] and creating a continuous stream of paint between said paint ~~cannister canister~~ and said paint applicator; and

delivering solvent under pressure to said delivery line [[(140)]] adjacent or within said paint applicator [[(130)]] while withdrawing said piston [[(137)]] in said paint ~~cannister canister~~ [[(134)]]~~, thereby delivering said paint and said predetermined volume of solvent to said delivery line [[(140)]]~~, wherein the volume of solvent delivered to said delivery line is determined by the distance said piston [[(137)]] is withdrawn in said paint ~~cannister canister~~ [[(134)]].

27. (Presently amended) The method as defined in Claim 26, wherein said method includes continuing to withdraw said piston [[(134)]] in said paint ~~cannister canister~~ to deliver said predetermined volume of solvent at least partly to said paint ~~cannister canister~~ [[(134)]].

28. (Presently amended) The method defined in Claim 26 [[or 27]], wherein said paint delivery and application system includes a pigging element [[(166)]] in said delivery line [[(140)]]~~, said method including extending said piston [[(137)]] to~~

deliver said paint and said pigging [[(166)]] element to said paint applicator [[(130)]] then delivering solvent to said delivery line [[(140)]] adjacent or within said paint applicator and withdrawing said piston [[(137)]] to deliver paint remaining in said delivery line [[(140)]] to said paint ~~cannister canister~~ [[(134)]], said solvent driving said pigging element [[(166)]] to said paint ~~cannister canister~~ [[(134)]].

29-33. (Canceled)

34. (New) The method as defined in Claim 20, wherein said second pair of separate supply lines each include a pigging element, a first pigging station adjacent said paint canister and a second pigging station adjacent or within said paint applicator, said method including driving said pigging element from said second pigging station to said first pigging station, thereby driving remaining paint in said second pair of supply lines to one of said paint canisters and retracting said piston, then extending said piston to drive said remaining paint to said paint supply switching device.